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**Elastomeric Sheet Roofing
TECHNICAL GUIDE**

TG 07530

1. COORDINATION ISSUES:

1.1 Imbedded and Applied Metal items: Coordinate the roofing work with sheet metal edging, flashing, gutters and downspouts usually specified in a section 07620. Make sure the warranties required are similar to this Technical Guide.

1.2 Plumbing Penetrations: Coordinate design of vent pipe flashing and roof drains with plumbing design section. Coordinate mechanical penetrations. Coordinate electrical penetrations.

2. DESIGN ISSUES:

2.1 Scope: This Technical Guide covers the following membrane systems:

2.1.1 Ethylene propylene diene monomer (EPDM)

2.1.2 Polyvinyl chloride (PVC)

2.1.3 Polyisobutylene (PIB)

2.1.4 Chlorosulfonated polyethylene (CSPE)

2.1.5 Chlorinated polyethylene (CPE)

2.1.6 Fabric-Reinforced Thermoplastic Polyolefin Sheet (TPO)

2.2 Building Design and Code Issues: In the selection of roof covering system consider the following building generated system performance requirements:

2.2.1 Roof slope: Is the roof structure greater and less than the minimum or maximum allowed by the roofing manufacturer. Are there areas where drainage is difficult or impossible resulting in ponding or birdbaths? Are crickets adequately designed to quickly direct rainwater to drains or scuppers? Is structural deflection likely to leave roof drain inlets above the roof low points?:-

2.2.2 Fire Test Response Characteristics: Is the roof covering assembly required by the applicable building code to be rated for either or both of the following?:

2.2.2.1 Exterior Fire-Test Exposure: ASTM E 108 Class A, B or C for application and roof slopes indicated.

2.2.2.2 Fire-Resistance Ratings: ASTM E 119, rated in hours, for fire-resistance-rated roof assemblies of which roofing system is a part.

2.3 Roof System Selection:

2.3.1 Refer to TG 07550 for insulation selection.

2.3.2 EPDM membranes are available either non-reinforced or reinforced with an internal polyester scrim. While the use of a 0.060 inch thick reinforced membrane is generally not required by the various manufacturers using a fully-adhered system, the consultant is advised to consider their specific project conditions and requirements when determining whether a reinforced membrane should be specified (e.g. the amount of foot traffic by AC maintenance personnel).

2.3.3 EPDM membranes are also available as a black, white, or an integral white-on-black product. In determining whether a black or white color finish is required, the consultant is advised to consider the following:

2.3.3.1 Coated systems shall not be specified since they require continued maintenance (i.e. future recoating). In addition, poor application of the coating has lead to blistering and peeling which in turn can cause blockage of the roof drains.

2.3.3.2 A light colored finish may be required to reduce heat load and consequential air conditioning system size. Confirm heat reflectivity coefficient with energy conservation standards applicable to the project. If a light color is needed consider another material technology such as TPO, CSPE, PVC or CE which are available in a range of integral colors and may offer a better life cycle cost.

2.3.3.3 A white finish may not be required by the particular project (e.g. the glare of reflected sunlight may impact adjacent buildings,

mildew growth in wet areas requiring continued cleaning to keep the membrane white, etc.). In such cases, the less expensive black membrane should be specified.

2.3.4 Because of its cost, do not specify fleece-backed TPO membrane unless this feature is required to satisfy a combination of requirements, including type of structural deck, method of membrane attachment, and wind uplift.

2.4 See TG 07590 for repair and maintenance roof guide.

2.5 Assembly Component and Accessory Design and Selection:

2.5.1 Special warranty may require selection of manufacturer's approved or brand named insulation and accessories such as mechanical anchors and termination metal items (gravel stops, copings and scuppers).

2.5.2 TPO Membrane Roofs: Embedded sheet metal items (gravel stops, scuppers, duct flashing) must be factory TPO covered for adhesion.

3. **DRAWING NOTES: (Not Used)**

4. **STANDARD DRAWINGS:**

4.1 **NRCA:** Plates from the NRCA Roofing and Waterproofing Manual may be referenced by number in lieu of drawing standard details. Choose only plates for the roof membrane termination and penetration conditions applicable to the project.

5. **SPECIFICATION NOTES:**

5.1 **Specification Paragraphs:** As of 03/2003, a complete Guide Specification for 07530 is no longer being maintained by DAGS. Utilize the following specification paragraphs and information as appropriate in the development of the Project Specifications.

6. **GUIDE SPECIFICATION: (~~Not Used~~)**

6.1. Quality Assurance: Require applicator to be approved, authorized or licensed by the roofing system manufacturer to install manufacturer's product.

6.2 Source Limitations: Require that primary components of each system be obtained from a single manufacturer and secondary materials be approved by roof covering system manufacturer.

6.3 **Testing (Part 1):**

6.3.1 Test substrates for adequate holding power before roofing is started. A fastener of the type proposed to be used shall be driven and pulled out. No roofing shall commence until a minimum resistance of 50 pounds has been attained. All decks shall have test conducted to verify minimum pull test resistance meeting specific manufacturer's uplift requirements for the specified roofing system.

6.4 **Submittals (Part 1):**

6.4.1 Manufacturer's certificate attesting that installing contractor is approved, authorized or licensed by manufacturer to install proposed roofing system.

6.4.2 **Information Card:** For each roof project, furnish a typewritten information card for facility records and a card laminated in plastic, attached to the underside of the roof hatch, or as directed by the Contracting Officer. Cards shall be 8-1/2 inches x 11 inches. Information card shall identify facility name and/or facility designation (letter or number), contract number, type of roof system installed, including deck type, type of membrane, number of plies, method of application, manufacturer, manufacturer's representative contact information, insulation and cover board system and thickness; date of completion; installer's warranty expiration date; installing contractor and contact information; membrane manufacture's material warranty expiration date; warranty reference number, and warranty contact information. See Roofing Information Card on next page.

ROOFING INFORMATION CARD

FACILITY

Building Name _____ Bldg. desig/No. _____

DAGS Job. No. _____

ROOF

Type of Roof System _____ Type of Deck _____

MEMBRANE

Type of Membrane _____ No. of Plies _____

APPLICATON

Method of Application _____ (nailed, heat applied, self-adhered, etc.)

INSULATION

Type of Insulation _____ Cover Board _____

Thickness _____ Thickness _____

INSTALLER (Roofing Contractor)

Company _____ Contact person _____

Contact No. _____

MANUFACTURER

Company _____ Representative _____

Contact No. _____

COMPLETION DATE _____

DATE INSTALLER'S WARRANTY EXPIRES _____

DATE MANUFACTURER'S WARRANTY EXPIRES _____

Warranty Reference No. _____ Warranty Contact person _____

Contact No. _____

6.5 Delivery, Storage and Handling (Part 1):

- 6.5.1 On roof areas or suspended floors, distribute materials so that their resultant weight does not exceed the design live load on the deck (normally 20 pounds per square foot on roofs and 40 pounds per square foot on floors).
- 6.5.2 Be aware that vapors from bonding adhesives and lap cements may be harmful if breathed in and may also be flammable. Consult container labels and material safety data sheets for specific information on the products being used.

6.6 Pre-installation Meeting (Part 1):

- 6.6.1 The General Contractor, the authorized roofing and roofing adhesive manufacturers' representatives or their independent roofing inspectors shall attend a pre-installation meeting. Include other related trades, such as the sheet metal contractor, as applicable. Confirm the required participants with the Contracting Officer. Notify participants at least five days prior to meeting. Intent of meeting is to review the preparation and installation requirements for the roofing system and to coordinate and schedule the required work.

6.7 Roofing System Manufacturer's Project Participation (Part 1):

- 6.7.1 The General Contractor, Roofing Installer and Roofing System Manufacturer Representative or their independent roofing inspector shall inspect the roof surfaces at the following times:
1. Prior to the start of the roofing installation,
 2. At the start of the roofing application,
 3. At least once during the roofing application, unless the Roofing System Manufacturer requires additional inspections for warranty provisions.
- 6.7.2 Change the number of inspections to suit magnitude and complexity of the project. A minimum of one inspection is required during the roofing application for roofs not larger than 7,000 square feet with no unusual penetrations and with no rooftop equipment mounts.

6.8 Minimum Warranty Requirements (Part 1):

- 6.8.1 The warranty provisions and number of years for the warranty required by this article shall take precedence over the standard provisions in the GENERAL CONDITIONS.
- 6.8.2 ~~Special Warranty: Roofing Installer and Manufacturer(s), bonded warranty without monetary limitation, in which roof installer and manufacturer(s) agrees~~ to repair or replace components of roofing system that fail in materials or workmanship within the specified warranty period. Failure includes roof leaks, and materials and adhesion failure due to wind conditions.
- 6.8.3 ~~Special Warranty~~ includes roofing membranes and base flashings, [roofing membrane accessories] [roof insulation] [fasteners] [cover boards] [substrate boards] [vapor retarders] [roof pavers] [walkway products] and other components of the roofing system.

Warranty Period: ~~Ten~~ <10> <15> <20> years from the Project Acceptance Date.

Wind Conditions: Warranty shall cover ~~peak~~ basic wind speeds up to 80 MPH Exposure and Importance Factor , as defined by the local Building Code in effect for the applicable building heights.

Warranty shall state the Manufacturer's acceptance that the roof was installed in accordance with the contract requirements and that the State's personnel were properly instructed in the maintenance procedures.

In the event of a failure State, Contractor, Roofing Installer and Manufacturer shall mutually agree and determine roof system failures and remedies.

- 6.8.4 ~~Special~~ Project Warranty: Submit Contractor's ~~bonded~~ warranty covering work of this section, including all components of roof system such as roofing membrane, base flashing, roofing membrane accessories, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period and conditions:

Warranty Period: ~~Three~~ Two years from the Project Acceptance Date.

Warranty shall cover repairs or replacement of damages to the building and its finishes due to leaks.

6.8.5 Warranty Roof Inspections: Conduct a yearly inspection with the State representative just prior to the first, ~~third, fifth and second~~ year anniversary of the Project Acceptance Date. The purpose of the inspections are is to identification identify and correct deficiencies in all components of the roofing and flashing system.

END OF SECTION ~~07530~~

UPDATED INFORMATION IS UNDERLINED. NEW INFORMATION IS UNDERLINED AND DELETED TEXT IS STRUCK OUT.